

6. (Amended) The system of claim 4, whereby an instruction to terminate a diagnostic session is transmitted by said ground station transmitter over said wireless communication channel in response to a command entered via said user interface, said instruction preventing further diagnostic activity by said wireless diagnostic device with respect to said control network.

7. (Amended) The system of claim 1, further comprising a diagnostic and maintenance information database connected to said at least one ground station, whereby information relating to said control network is retrieved in response to a remote request received from said wireless diagnostic device.

9. (Amended) The system of claim 1, wherein said wireless diagnostic device comprises a self-contained graphical display device physically connected to a self-contained wireless intermediary unit through a cable connection, said wireless intermediary unit containing said transmitter and receiver for communicating over said wireless communication channel with said control network.

11. (Amended) A method of testing or diagnosing an on-board control network, comprising the steps of:

transmitting messages between a wireless diagnostic device and the on-board control network over a wireless communication channel, said wireless diagnostic device adapted for manual transport; and

monitoring the transmitted messages at a wireless ground station, said wireless ground station comprising a ground station receiver attuned to said wireless communication channel.

16. (Amended) The method of claim 11, further comprising the step of retrieving, in response to a remote request received from said wireless diagnostic device, information relating to said on-board control network from a diagnostic and maintenance information database connected to said ground station.

17. (Amended) The method of claim 16, wherein said information relating to said on-board control network comprises graphical information relating to said on-board control network, said method further comprising the step of displaying said graphical information on a screen display at said wireless diagnostic device.

18. (Amended) The method of claim 11, wherein said step of transmitting messages between said wireless diagnostic device and the on-board control network over said wireless communication channel comprises the steps of transmitting messages between a wireless intermediary unit and the on-board control network over said wireless communication channel, said wireless intermediary unit connected to a graphical display device.

19. (Amended) The method of claim 11, further comprising the steps of:
transmitting from said wireless diagnostic device, in response to an entered command, a forced output instruction to said on-board control network over said wireless communication channel;

receiving said forced output instruction at said on-board control network; and
in response to said forced output instruction, selecting values for one or more inputs to a controlled electronic circuit such that an output of a control network element is forced to a predetermined state, in the absence of a fault condition.

20. (Amended) A diagnostic and maintenance system, comprising:
a portable wireless diagnostic device, said wireless diagnostic device comprising a transmitter and receiver for communicating over a wireless communication channel with a control network to be monitored, diagnosed, or tested;

a plurality of wireless ground stations, at least one of said wireless ground stations comprising a receiver attuned to said wireless communication channel whereby transmitted messages between said portable wireless diagnostic device and the control network are monitored;

a ground station interface connected to said plurality of wireless ground stations; and

a local area computer network connected to said ground station interface, said local area computer network comprising one or more user terminals, said one or more user terminals each comprising a screen display whereby information relating to said transmitted messages is displayed.

21. (Amended) The diagnostic and maintenance system of claim 20, wherein said portable wireless diagnostic device comprises a self-contained graphical display device physically connected to a self-contained wireless intermediary unit through a cable connection, said wireless intermediary unit containing said transmitter and receiver for communicating over said wireless communication channel with said control network.

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14 ~~25~~ (Amended) The system of claim ~~20~~, further comprising a diagnostic and maintenance information database connected to said local area computer network, whereby information relating to said control network is retrieved in response to a remote request received from said portable wireless diagnostic device.

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15 ~~26~~ (Amended) The system of claim ~~25~~, wherein said information relating to said control network comprises graphical information relating to said control network, said graphical information being displayed on a screen display at said portable wireless diagnostic device.

¹⁶ ~~27~~ (Amended) A diagnostic and maintenance system, comprising:
a plurality of portable wireless diagnostic devices, each comprising a transmitter and receiver, said portable wireless diagnostic devices communicating [over a plurality of wireless communication channels] wirelessly with one or more control networks to be diagnosed, monitored, or tested, each of said portable wireless diagnostic devices programmed to perform at least one diagnosis or test function relating to said one or more control networks; and

at least one wireless ground station, said at least one wireless ground station comprising a ground station receiver attuned to at least one wireless communication

channel utilized by said portable wireless diagnostic devices, whereby transmitted messages between said portable wireless diagnostic devices and said one or more control networks are monitored.

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17 ~~28~~. (Amended) The diagnostic and maintenance system of claim ~~27~~, further comprising a ground station interface connected to said at least one wireless ground stations, and a local area computer network connected to said ground station interface, said local area computer network comprising one or more user terminals, said one or more user terminals each comprising a screen display whereby information relating to said transmitted messages is displayed.

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18 ~~29~~. (Amended) The diagnostic and maintenance system of claim ~~28~~, further comprising a memory storage device connected to said local area computer network, for storing transmitted messages monitored by said at least one wireless ground station.

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19 ~~30~~. (Amended) The diagnostic and maintenance system of claim ~~28~~, whereby instructions regarding diagnostic or test procedures are wirelessly transmitted by said at least one ground station in response to commands entered via said user terminals.

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20 ~~31~~. (Amended) The diagnostic and maintenance system of claim ~~28~~, whereby an instruction to terminate a diagnostic session is wirelessly transmitted by said at least one ground station in response to a command entered via one of said user terminals.

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21 ~~32~~. (Amended) The system of claim ~~28~~, further comprising a diagnostic and maintenance information database connected to said local area computer network, whereby information relating to said one or more control networks may be retrieved in response to a remote request received from any of said portable wireless diagnostic devices.

22 ~~33~~ ²¹ (Amended) The system of claim ~~32~~, wherein said information relating to said control network comprises graphical information relating to a control network, said graphical information being displayed on a screen display at the requesting portable wireless diagnostic device.

35. (Amended) The diagnostic and maintenance system of claim [34] ~~27~~, wherein each of said portable wireless diagnostic devices comprises a self-contained graphical display device connected to a self-contained wireless intermediary unit through a cable connection, said wireless intermediary unit containing said transmitter and receiver for wirelessly communicating with said one or more control networks.

Please add the following new claims:

23 ~~36~~ (New) The system of claim 1, wherein said control network resides in a vehicle and controls or monitors electronic functions of the vehicle.

37. (New) The method of claim 11, wherein said on-board control network controls or monitors electronic functions of a vehicle.

24 ~~38~~ ¹⁰ (New) The diagnostic and maintenance system of claim ~~20~~, wherein said control network resides in a vehicle and controls or monitors electronic functions of the vehicle.

25 ~~39~~ (New) The diagnostic and maintenance system of claim 1, wherein said control networks each reside in a vehicle and control or monitor electronic functions of the vehicles in which they reside.

40. (New) A system for facilitating diagnosis and maintenance of electronic control networks, comprising:

a portable diagnostic device, said portable diagnostic device comprising a transmitter and receiver for communicating over a wireless communication channel

with an on-vehicle control network, said on-vehicle control network comprising a control network wireless interface for communicating with said portable diagnostic device over said wireless communication channel; and

at least one ground station, said at least one ground station comprising a ground station receiver attuned to said wireless communication channel, whereby said ground station monitors messages transmitted over said wireless communication channel between said portable diagnostic device and said on-vehicle control network.

27 41. (New) The system of claim 40, further comprising a memory storage device connected to said at least one wireless ground station, for storing transmitted messages monitored by said wireless ground station over said wireless communication channel.

28 42. (New) The system of claim 40, further comprising at least one user terminal connected to said wireless ground station, said user terminal comprising a graphical display whereby information relating to said transmitted messages is displayed.

29 43. (New) The system of claim 40, further comprising a diagnostic and maintenance information database connected to said at least one ground station, whereby information relating to said control network is retrieved in response to a remote request received from said wireless diagnostic device.

44. (New) The system of claim 40, wherein said portable diagnostic device comprises a self-contained graphical display device physically connected to a self-contained wireless intermediary unit, said wireless intermediary unit containing said transmitter and receiver for communicating over said wireless communication channel with said control network.

45. (New) A method, comprising the steps of:

transmitting diagnostic messages between a portable diagnostic device and an on-vehicle control network over a wireless communication channel; and

monitoring the transmitted diagnostic messages at a ground station, said ground station comprising a ground station receiver attuned to said wireless communication channel.

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31 46. (New) The method of claim 45, further comprising the step of storing, in a memory storage device connected to said wireless ground station, transmitted messages received by said wireless ground station.

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32 47. (New) The method of claim 45, further comprising the step of displaying information relating to said transmitted messages on a graphical display of a user terminal connected to said wireless ground station.

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33 48. (New) The method of claim 47, further comprising the step of transmitting instructions regarding diagnostic or test procedures by said ground station over said wireless communication channel in response to commands entered via a user interface at said user terminal.

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34 49. (New) The method of claim 48, further comprising the step of retrieving, in response to a remote request received from said portable diagnostic device, information relating to said on-vehicle control network from a diagnostic and maintenance information database connected to said ground station.

50. (New) The method of claim 45, wherein said portable diagnostic device comprises a personal digital assistant, and wherein step of transmitting diagnostic messages between said portable diagnostic device and said on-vehicle control network comprises the step of transmitting messages between a self-contained wireless intermediary unit and the on-vehicle control network over said wireless communication channel.